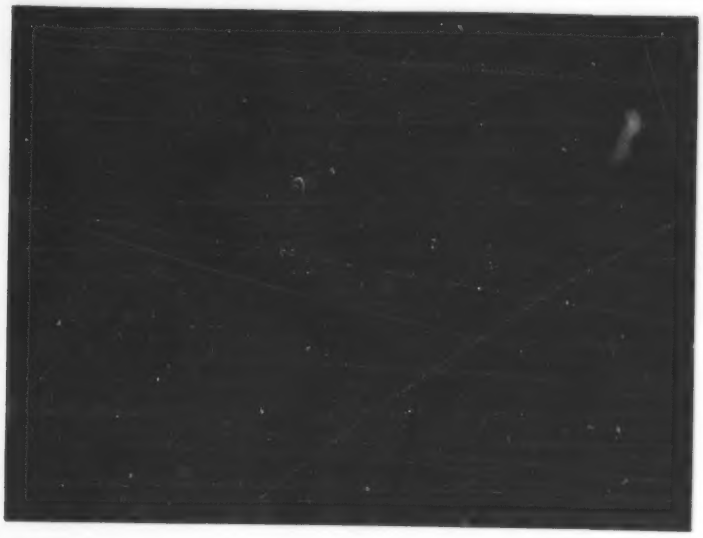
CANADIAN
PETROLEUM
ASSOCIATION



Environmental Audit Guidelines for Pipelines

Canadian Petroleum Association

January 1991

INDEX

Introduction

Format

Guidelines

100 Environmental Management/Planning
- 101 Policies
- 102 Responsibilities/Training
- 103 Environmental Audits

200 Operating Procedures
- 201 Environmental Awareness
- 202 General Environmental Maintenance Activities
- 203 Vegetation Control
- 204 Spill Control
- 205 Emissions

300 Spill Prevention
- 301 Physical Prevention Methods
- 302 Emergency Response

400 Hazardous Materials/Waste Management
- 401 Physical Storage Facilities
- 402 Disposal
- 403 Record Keeping
- 404 WHMIS
- 405 TDGA
- 406 Special Materials
  - 406A PCB's
  - 406B Asbestos
  - 406C Radioactive Materials
  - 406D Other

500 Environmental Monitoring

600 Construction
- 601 Planning
- 602 Construction/Inspection
- 603 Monitoring (Post Construction)

700 Abandonment Decommissioning and Reclamation

INTRODUCTION

Environmental auditing is a new and innovative form of management control, which has arisen in response to increased public concern for the environment and consequently more stringent environmental and pollution control regulations. It provides an objective basis, in part, by which a company can measure the degree of regulatory compliance that has been achieved over time. Furthermore, aside from its statutory implications, auditing is also being used by firms for their internal management, education, training and environmental communications programs.

Increasingly, a parallel objective of implementing environmental audits, is to ensure that the information and expertise derived therefrom becomes an integral part of a firm's risk management program, thereby leading to formalization of internal company procedures and policies. A number of other obvious advantages exist such as improved environmental management, two-way communication between field personnel and environmental professionals regarding issues of concern, and better protection from civil and criminal liabilities. Audits can also provide a formal mechanism for providing continuity of environmental surveillance records. Such formalized documentation may be essential in establishing due diligence in handling future regulatory initiatives and establishing liability.

Against such a background of increasing regulatory conditions and public education, which has changed operating conditions for conducting business in the oil and gas sector of the economy, in 1987 the Canadian Petroleum Association (CPA) developed an Environmental Code of Practice. As part of this committment to environmental protection, the Environmental Audit Guidelines for the Petroleum Industry*. This report provided a broad framework within which company-specific audit documentation for the petroleum industry could be developed. Within these general guidelines each company was encouraged to develop their own specific audit program, to meet individual company requirements.

The CPA Environmental Audit guidelines were prepared principally for seismic, drilling and production companies in the petroleum industry. Although the general principles and procedures outlined in this report are widely applicable, many of the questions and detailed procedures formulated in these guidelines are not appropriate for the pipeline industry.

The Pipeline Environmental Committee thus formed a task force to modify the environmental audit guidelines to meet the specific needs of the pipeline industry. This report represents the combined efforts of the task force and Pipeline Environmental Committee in compiling environmental audit guidelines for pipeline companies.

---

* Report perpared by Western Oilfield Environmental Services Ltd. and Affiliates: Dominion Ecological Consulting Ltd., Aquatic Resource Management Ltd., Profit Matters Inc., Ron Hickey P. Eng., and Wishart Robson.

FORMAT

The Environmental Audit Guidelines for the Petroleum Industry contains comprehensive discussions regarding the background of environmental auditing, potential benefits of audits, uses of audit information, pre-audit preparation and the organization, planning and conduct of audits. Such information is not repeated in this report, Environmental Audit Guidelines for Pipelines, which should be considered as a supplement to the former CPA document.

Environmental Audit Guidelines for Pipelines consist of a series of questions, organized into seven main categories as follows:

Environmental Management/Planning
Operating Procedures
Spill Prevention
Hazardous Materials/Waste Management
Environmental Monitoring
Construction
Abandonment, Decommissioning and Reclamation

Not all of these categories or subsequent subsections may be applicable to a particular company's activites. It is fully expected that in undertaking an environmental audit, the auditor will tailor the categories and questions to suit his/her organization's needs.

Guides are provided following the question to assist the auditor in judging compliance with audit protocol. Although the format of these environmental audit guidelines follows that of the Environmental Audit Guidelines for the Petroleum Industry, a scoring system has been omitted. No consensus regarding the use of a scoring system was reached in developing the pipeline audit guidelines. The user is thus referred back to the former document for a general discussion of scoring principles and is encouraged to select the system which best suits his/her organization's needs.

In judging the adequacy of an organization's responses to the audit questions, the auditor is referred to the following publications:

- CPA Environmental Code of Practice
- CPA Environmental Operating Guidelines
- CPA Reclamation of Pipeline Rights-Of-Way
- Federal, provincial legislation and regulations.

ENVIRONMENTAL AUDIT

GUIDELINES

MGMT 100 Environmental Management/Planning

101 *Policies*

MGMT 101-1 Is there a company environmental policy in place?

GUIDE Review written company policy.

MGMT 101-2 Has the environmental policy been effectively communicated to the overall organization?

GUIDE Evaluate form and adequacy of the environmental communication strategy.

MGMT 101-3 Do written policies, standards, procedures and programs show evidence that environmental concerns have been consistently addressed and applied throughout the company?

GUIDE Rate existing written policy and procedure guidelines to identify the company position on environmental concerns. Meet with department managers and review departmental policies and daily procedures in dealing with environmental issues.

MGMT 101-4 Do the company's written policies, standards, procedures and programs show evidence that environmental concerns such as compliance with statutory regulations and industry guidelines are a primary objective?

GUIDE Compare the company position to environmental regulations and general corporate practices.

MGMT 101-5 Does the company investigate proposed property purchase and operating agreements for potential environmental liablilities?

GUIDE Properties may have experienced spills or other discharges that could result in environmental problems. A review of operating history and/or a field investigation may prevent costly liabilities and litigation.

MGMT 101-6 Are lands/properties tendered for sale assessed for environmental liablities?

GUIDE Precedent and case law supports the claims of purchasers against the vendor for clean-up and other related costs when it has been subsequently discovered that the acquired property has environmental problems. A survey of tendered properties by a qualified third party may reduce these costs and prevent spurious or fraudulent claims.

MGMT 100 Environmental Management/Planning

101 *Policies*

MGMT 101-7 Is this information disclosed?

GUIDE Check records.

MGMT 101-8 Does the company have a data management system for recording and retrieving environmental related information?

GUIDE Whether manual or computerized, the system must access large amounts of data, and must be easily updated.

MGMT 101-9 Is there evidence that data is consistently collected and entered into the environmental data management system? Does everyone with environmental responsibility in the organization have access to this information?

GUIDE Look for regular and recent entries.

MGMT 100 Environmental Management/Planning

102 *Responsibilities/Training*

MGMT 102-1 Have employees with designated environmental responsibilities been given formal job instruction and/or specialized training?

GUIDE Review facility training program and conduct employee interviews.

MGMT 102-2 Does the company support or conduct programs to make the employee aware of industry or company initiatives for the prevention and control of environmental hazards?

GUIDE Determine if the company supports/encourages participation in industry associations and individual efforts to educate employees in environmental matters.

MGMT 102-3 Does the company support or conduct programs to make the public aware of industry or company initiatives for the prevention and control of environmental hazards?

GUIDE Determine if the company participates in industry initiatives (in house; excluding outside advertising) to educate government and the public. Look for programs that are aimed at the general public or at site specific populations to promote company initiatives.

MGMT 102-4 Are environmetnal issues addressed within the company by trained employees or contract personnel?

GUIDE Implies technical skills and experience in the evironmental sciences.

MGMT 102-5 Is there a group or individual responsible for environmental regulatory compliance?

GUIDE Indentify group and/or individual.

MGMT 100 Environmental Management/Planning

102 *Responsibilities/Training*

MGMT 102-6 Are environmental responsibilities/accountabilities detailed for:
- Corporate Officers?
- Operations Management?
- Senior Opertating Personnel?
- Environmental Coordinators/advisors?
- Field Supervisors?

GUIDE Based on existing environmental regulations and constant regulation changes certain employees are being given the responsibilities of staying current with environmental regulations to prevent the company from liability or shutdown as a result of an environmental related incident. Identify if management recognizes the concern and interview personnel to determine if these responsibilities and accountabilities are part of their job description.

MGMT 102-7 Do employee appraisals include consideration of environmental performance relative to the respective employee responsibilities?

GUIDE Employees may have responsibilities which include environmental related regulatory authorizations, transporting dangerous goods, hazardous waste mangagement, reclamation duties or vegetation management.

MGMT 100 Environmental Management/Planning

103 *Environmental Audits*

MGMT 103-1 Does the company currently undertake audits of minority owned companies, co-venture and joint venture operations?

GUIDE Precedent and case law supports the claims of purchasers against the vendor for clean-up and other related costs when it has been subsequently discovered that the acquired property has environmental problems. A survey of tendered properties by a qualified third party may reduce these costs and prevent spurious or fraudulent claims.

MGMT 103-2 Have previous audits been conducted at appropriate intervals in a consistent manner?

GUIDE Verify audit frequency. Compare audit reports for consistancy of material, and for audit method.

MGMT 103-3 Have recommendations from previous audits been assessed and/or implemented?

GUIDE Check previous audits for recommendations, verify implementation through interview or file inspection.

MGMT 103-4 Was the audit schedule established on a rationale basis of environmental risk?

GUIDE Evaluate reasonableness of audit schedule.

MGMT 103-5 Is the environmental audit undertaken by an objective professional?

GUIDE Assess appropriateness of choice of author and his/her qualifications.

OPS	**200**	**Operating Procedures**
	201	***Environmental Awareness***

OPS	201-1	Are bulletins regarding environmental issues distributed to company personnel on a regular basis?
GUIDE		Check bulletin boards of files for posting or circulation of environmental issues.
MGMT	201-2	Are environmental issues raised by personnel during regular operations meetings?
GUIDE		Review minutes of operations meetings for mention of environmental issues.
MGMT	201-3	Is there a mechanism in place to ensure environmental concerns raised by employees are investigated and remedial actions proposed?
GUIDE		Discuss procedures by which environmental concerns are handled when raised by employees.
MGMT	201-4	Are employees made aware of significant environmental issues which affect the company as part of the corporate environmental awareness program?
GUIDE		Review issues addressed and frequency of environmental information dissemination to employees.

OPS 200 Operating Procedures

202 *General Environmental Maintenance Activities*

OPS 202-1 Were gates constructed at private fence crossings where required prior to field maintenance operations? Were these gates removed and the fences properly restored after all work was completed?

GUIDE Regulatory guidelines require public access control. Landowners and occupants may request livestock control. Determine what work was undertaken.

OPS 202-2 When undertaking maintenance activities on the right-of-way, what precautions were taken to mitigate damage to topsoil and ground cover?

GUIDE Regulations provide guidelines for conditions which restrict clearing operations. Identify if clearing operations were restricted; if topsoil was stripped, discuss revegetation methods used, etc..

OPS 202-3 Were environmental protection measures implemented during any in-stream operations? Were necessary permits obtained?

GUIDE Check if permit was required and any permit conditions. An inspection should be conducted at all stream crossings to determine if sediment or stream bank problems exist.

OPS 202-4 During maintenance activities are vehicle operations restricted to prevent erosion or vegetation damage in sensitive areas and soil degredation in agricultural areas?

GUIDE Improper use of vehicles, and working during unfavorable weather conditions should be identified to document resulting soil problems and liability. Discuss with supervisors for awareness of this concern. Review project description for mention of vehicle restrictions.

OPS 202-5 Is there evidence of implementation of effective erosion control measures as required?

GUIDE Look for control of surface run-off, proper culvert maintenance, slope stabilization, and siltation in lakes, rivers, and streams.

OPS 202-6 Have reclamation/revegetation programs been successful?

GUIDE Look for results of these programs at the sites of maintenance operations. Verify that the programs have produced aesthetically pleasing results, and review any correspondence with landowner and regulators.

OPS 202-7 Are right-of-way and above ground facilities properly marked and protected against accidental impact or vandalism?

GUIDE Look for fencing and marking (including state of repair) where necessary. Properly marked pipelines and above-ground facilities aid non-company personnel when reporting abnormal events.

OPS 202-8 Have facilities and rights-of-way been cleared of debris, and unused equipment?

GUIDE Aesthetics are important especially near public roads and residential areas. Debris removal reduces the chance of injury and equipment loss, and litigation. The visual impact of a facility can influence the attitude of employees, inspectors and the public. Poor aesthetics detract from an otherwise adequate facility. There should be no idle equipment or materials indiscriminantely stored.

OPS 202-9 Is access to environmentally sensitive areas controlled and appropriate measures taken during maintenance acitvities?

GUIDE Look for gates or other obstacles that afford the necessary protection.

OPS 202-10 Are discontinued rights-of-way and facilities maintained in the same fashion as the operating facilites?

GUIDE Look for good vegetation control, spill prevention and access maintenance.

OPS 202-11 Is surface run-off contained from the site?

GUIDE Look for dikes or impoundments.

OPS 202-12 Are landscaped areas of the facility (lawns, flower beds, etc.) maintained?

GUIDE Verify by inspection.

OPS 202-13 Are facility signage, sidewalks, fences and buildings maintained, and painted?

GUIDE Check for program of grounds and building maintenance. Audits conducted in winter and spring should be more subjective.

OPS 202-14 Were all required water use authorizations obtained and conditions of approval met? Are copies of any approvals kept on-site?

GUIDE Check if permit is required and conditions of approval. Look for on-site copies.

OPS 202-15 Have energy conservation methods been implemented at the facility?

GUIDE Verify by interview and inspection if thermostat controls for off-hours are adjusted, lighting, insulation programs, caulking, etc..

OPS 200 Operating Procedures

203 *Vegetation Control*

OPS 203-1 Is there evidence of a vegetation control management plan or procedures?

GUIDE Check vegetation on and adjacent to the right-of-way, station sites and above-ground facility sites. Look for excessive weed infestation and poor vegetation cover. This condition may enhance soil erosion. Review vegetation management plan amd procedures.

OPS 203-2 Is the vegetation control program being properly applied?

GUIDE Verify by inspection.

OPS 203-3 Are mechanical methods of brush control attempted before or in combination with using chemical methods?

GUIDE Chemical programs are costly and can lead to off right-of-way environmental impacts from spills and run-off. Verify if this has been considered by interviewing operations personnel.

OPS 203-4 Are herbicides applied by licenced applicators/contractors?

GUIDE Check records for licensing.

OPS 203-5 Are records kept of all applications of herbicides?

GUIDE Records of the types of herbicide, date, location and application rate should be available on-site.

OPS 200 **Operating Procedures**

202 ***Maintenance Activities***

OPS 203-6 Have measures been considered to prevent off-site run-off of herbicides and other chemicals?

GUIDE Inspect topography, natural run-off areas. Determine if weather conditions have been considered during application. Compare vegetation on both sides of application.

OPS 203-7 Are herbicides stored in accordance with all applicable regulations?

GUIDE Inspect herbicide storage location. Look for adequate ventilation, placard affixed and maintained on the outside of each door labelled "Chemical Storage Warning - Authorized Persons Only". The herbicides should be stored in an area not likely to come in contact with food or drink, in an area that is clean, cool, dry and in an orderly fashion.

OPS 200 Operating Procedures

204 *Spill Control*

OPS 204-1 Are there appropriate and consistent monitoring programs of the right-of-way to visually detect spills or leaks?

GUIDE Determine the frequency of inspection/surveillance and evaluate whether these have been designed and implemented commensurate with potential environmental risk.

OPS 204-2 Are there remote detection systems in place to detect spills and leaks from pipelines?

GUIDE Look for evidence of systems that detect abnormal operating conditions.

OPS 204-3 Are spills assessed after the fact in an effort to design remedial measures?

GUIDE Look for evidence that recurring spill events have led to design and implementation of programs to prevent spills (i.e. line replacement or re-engineering of surface installations).

OPS 204-4 Have physical spill containment measures been implemented?

GUIDE Look for diking and contouring of facilities to contain oil spills, and racking of drums as examples of spill prevention.

OPS 204-5 Are access and control points selected for spill containment and recovery areas?

GUIDE Check if they are permanently or only seasonally accessible? Do potential liabilities warrant the construction of better access/control points?

OPS 204-6 Are all product storage areas contained within properly sized and well maintained impermeable dikes?

GUIDE Inspect and measure dikes. Review design plans for capacity of storage vessels.

OPS 204-7 Are storage and handling sites properly separated from other facility operations?

GUIDE Inspect site. Storage of materials should not be in a "high traffic area" where they could be inadvertently spilled.

OPS 204-8 Are vents and/or drains installed and functioning?

GUIDE Vents and drains should be directed to managed control points.

OPS 204-9 Are oily sludges stored in open pits; are they approved, and if so, are the pits lined with an impermeable barrier and fenced off?

GUIDE Inspect site. Review approval documentation.

OPS 200 **Operating Procedures**

205 ***Emissions***

OPS 205-1 Are air emissions (e.g. CO2, VOC, NOX, SO2, etc.) measured or monitored?

GUIDE Verify if emissions are measured.

OPS 205-2 How do air emissions compare to the regulations or acccepted guidelines?

GUIDE Check monitoring results against government standards.

OPS 205-3 Do emergency operating procedures exist should maximum authorized air quality regulations be exceeded?

GUIDE Procedures for alerting operations staff and regulatory authorities of violation, internal reporting, and technical considerations should be documented.

OPS 205-4 Are measures taken to minimize vapour emissions?

GUIDE Look for methods that indicate efforts are being made.

OPS 205-5 Have there been complaints of odours at the facility? Have remedial measures been taken?

GUIDE Where odour has been a problem, have complaints been investigated and corrective action been taken? Check for odour especially at distance from the plant. Check files for public complaints. Determine if odour source is known and if corrective steps are being taken.

OPS 205-6 Are all pressure relief systems vented to a Vapour Recovery Unit or the flare stack?

GUIDE Gases should be redirected to the process Vapour Recovery Unit or to a flare.

OPS 205-7 Are hydrocarbon vapours purged from tank cars, tanker trucks or other purged vessels returned to process or burned?

GUIDE Verify through review of process drawings, physical inspection and interview.

OPS 200 **Operating Procedures**

205 ***Emissions***

OPS 205-8 Are regeneration gases collected and burned?

GUIDE Regeneration gases from raw gas and LPG sweetening systems should be collected and sent to the flare. Check with operating personnel and inspect site.

OPS 205-9 Have all the emission sources been properly permitted, received prior approvals, licensed or approved?

GUIDE Check records for emissions and verify that prior approvals were received where necessary.

OPS 205-10 Is the air monitoring equipment operational and well maintained?

GUIDE Examine on-site and off-site equipment. Determine down time due to equipment failure and accuracy of results. Determine if equipment has annual maintenance and calibration checks.

OPS 205-11 Are the air monitoring devices connected to the control room?

GUIDE Look for measures to alert operators to emisions violations.

OPS 205-12 Have there been instances when liquids have been observed escaping from the top of the flare stack? What remedial action was taken?

GUIDE This is an indication of a process problem that could have serious implications. The cause should have been determined immediately and corrective action taken.

OPS 205-13 Are noise levels routinely measured at the facility?

GUIDE Check records.

OPS 205-14 How do noise levels at the facility compare to provincial/municipal noise guidelines?

GUIDE Pre-Audit preparation - determine local noise by-law regulations and provincial standards. Compare to government standards.

OPS 200 **Operating Procedures**

205 ***Emissions***

OPS 205-15 Have noise complaints been registered? Have these been investigated?

GUIDE Check records for complaints and follow-up action. Were complaints investigated objectively and remedial measures assessed?

SPILL 300 Spill Prevention

301 *Physical Prevention Methods*

SPILL 301-1 Do on-site prevention and control methods and equipment provide:
1) Leak prevention in storage and transfer facilities?
2) Primary containment (tanks, sumps, dikes, drainage)?
3) Secondary containment (ditches, lagoons, pits)?
4) Emergency containment (sandbags, pumps, absorbants)?
5) Safety valve and rupture disk discharge systems?
6) Emergency venting, purging and bypass systems?

GUIDE Each of the six must be assessed for process, storage, loading and transportation activities at each facility. Contractor's equipment must be considered when evaluating the adequacy of the entire system.

SPILL 301-2 Are formal surveys made to identify the need for spill prevention control methods and equipment?

GUIDE Changes in facilites, operating guidelines, government regulations, and company policy may necessitate a modification in equipment and procedures. Modifications should be documented. Previous audits may constitiute such a review.

SPILL 301-3 Have the survey recommendations been implemented?

GUIDE Determine if any recommendations have been implemented through interview, inspection, and records review.

SPILL 301-4 Have devices been installed to detect losses, leaks and/or spills from above ground or underground installations?

GUIDE Detection devices that raise an alarm or that require an active response are most desirable. Devices that indicate a loss during routine inspection are acceptable only if there is evidence that the level of inspection is consistent with volume and hazard of the material in question.

SPILL 301-5 Are details of all spills recorded and available?

GUIDE Review previous files and interview facility personnel.

SPILL 301-6 Are spill reporting procedures clearly understood?

GUIDE Listen for awareness of who to call, form to fill out, reporting requirements.

SPILL 300 Spill Prevention

302 *Emergency Response*

SPILL 302-1 Is the emergency response capability sufficient to handle anticipated spills, releases, or other incidents?

GUIDE Compare requirements of response plans to resources (equipment/personnel/ absorbent materials) with knowledge/ability of response organization.

SPILL 302-2 Are there on-going spill prevention programs in place such as erosion protection, right-of-way surveillance and pipeline surveys?

GUIDE Review programs with responsible personnel.

SPILL 302-3 Does the emergency response plan for the pipeline system and related facilities (LVP, HVP, natural gas, sour gas) make mention of environmental concerns?

GUIDE Check for written company specific plan and/or oil spill co-operative plan.

SPILL 302-4 Is a copy of the emergency response plan available on-site, and are personnel familiar with the plan and procedures.

GUIDE Locate a copy through interview. Determine the level of knowledge and ability to successfully implement.

SPILL 302-5 Does the company belong to mutual aid organizations to support in-house response efforts.

GUIDE Specifically, oil spill co-operatives or qualified contractors/consultants on location. Check for written proof of activity.

SPILL 302-6 Does the emergency response plan include specific responsibilities for response and control activities?

GUIDE The plan should list and assign specific duties:

- Initial response
- Containment and control
- Media
- Regulatory agencies
- Public

SPILL 302-7 Are these personnel trained in their area of responsibilty?

GUIDE Check training program.

SPILL 302-8 Do company personnel and contractors participate in training or simulated drills to improve the response efficiency of company and mutual aid organizations?

GUIDE Verify through interview of company or co-operative personnel.

SPILL 302-9 If deficiencies were noted, or recommendations made arising out of an excercise, were they corrected or implemented?

GUIDE Verify through interview and/or files that appropriate changes were made.

SPILL 302-10 Do emergency response plans comply with applicable government regulations?

GUIDE Check against regulations.

SPILL 302-11 Is there a Community Awareness and Emergency Response program?

GUIDE Yes/No

SPILL 302-12 Does the company share emergency response information with the corporations it does business with?

GUIDE Yes/No.

SPILL 302-13 Are emergency response plans reviewed and updated annually?

GUIDE Yes/No.

HAZ **400 Hazardous Materials/Waste Management**

401 *Physical Storage Facilities*

HAZ 401-1 Are all hazardous materials stored, handled, and disposed of in such way as to minimize the risk of spills and environmental damage?

GUIDE Check against regulations for storage. Verify by inspection of storage facilities.

HAZ 401-2 Are wastes segregated into separate areas/bins and properly stored?

GUIDE Inspect waste containers and verify wastes separated (combustibles, recyclables, reclaimables). Check drum identification, location, waste segregation, berming, and maintenance.

HAZ 401-3 Is public, wildlife or livestock access restricted to temporary waste storage sites?

GUIDE Review records, interview personnel, inspect sites.

HAZ 401-4 Does runoff water from non-process areas collected in drains, ditches, troughs and other run-off collection systems flow into a tank or ponds?

GUIDE Verify through inpsection.

HAZ 401-5 Are waste impoundments lined with impervious material (clay, PVC, concrete, etc.) to prevent groundwater contamination?

GUIDE Verify through inspection.

HAZ **400 Hazardous Materials/Waste Management**

402 *Disposal*

HAZ 402-1 Are identified toxic or hazardous wastes transported from the facility site and disposed of at an approved disposal site?

GUIDE Hazardous waste handling and disposal must comply with government regulations. Identify acceptable procedures with involved personnel, and follow-up with an inspection of the storage and disposal areas (i.e. waste oils/toxic wastes/oil spill debris).

HAZ 402-2 Are all transport and disposal approvals received in writing prior to the removal of this material.

GUIDE Review records.

HAZ 402-3 Is solid waste disposed of on-site?

GUIDE For off-site disposal, was the location an approved municipal landfill? For on-site disposal, was the site properly operated and monitored for leachate?

HAZ 402-4 Is waste water from maintenance activities stored and analysed prior to release?

GUIDE Trace possible routes of washings and colected spills. Check with personnel. Look for ways the system can be bypassed and discharges made to the environment.

HAZ 402-5 Does the facility recycle waste materials?

GUIDE Look for programs that recognize and reward efforts at waste reduction or recycling.

HAZ 402-6 Is facility sewage treated or disposed of in a manner that does not contaminate surface water or groundwater?

GUIDE Determine what type of system is in place. Primary treatment is acceptable. Check maintenance program for any treatment system. Analysis of fecal coliforms should be carried out in any monitoring program.

HAZ **400 Hazardous Materials/Waste Management**

402 *Disposal*

HAZ 402-7 When sewage effluent was treated on-site, was the treatment consistent with regulatory and company standards and in an environmentally acceptable manner?

GUIDE Package plant, lagoons, septic systems or incineration are potentialy suitable systems. Check for effluent quality of plants and lagoons, impermeable liners in lagoons, percolation tests of septic field, incinerators and regulatory disposal authorizations.

HAZ **400 Hazardous Materials/Waste Management**

403 *Record Keeping*

HAZ 403-1 Has this facility been registered as a waste generator?

GUIDE Interview personnel and check files for waste management activites. Verify that manifesting procedures are correct. Determine causes of unacceptable practices.

HAZ 403-2 Are copies of all regulatory authorizations for site waste disposal readily available?

GUIDE Prior to the audit, check authorizations required for wastes and waste disposal activities on and off-site. Ensure the authorizations are current and copies are on-site.

HAZ 403-3 Has a hazardous waste/dangerous goods inventory been conducted at the facility?

GUIDE Inspect plant waste records and inventory reports.

HAZ 403-4 Are records maintained as to hazardous waste type, volume, originating source, and disposal method and location?

GUIDE Look for records of manifest forms, purchase orders, design and contractor documents. Compare paper inventory against physical material in waste storage.

HAZ **400 Hazardous Materials/Waste Management**

404 *WHMIS*

HAZ 404-1 Are chemicals properly stored in appropriately labelled containers?

GUIDE Inspect chemical storage facility and verify storage labelling.

HAZ 404-2 Are Material Safety Data Sheets readily available for all chemical products stored and handled at each facility?

GUIDE Document products stored on-site. Verify MSDS sheets are available.

HAZ 404-3 Have on-site personnel taken the required hazardous materials refresher courses?

GUIDE Review staff training files, or interview appropriate personnel.

HAZ 404-4 Has the facility considered the use of less toxic and unregulated chemicals as alternatives to toxic/regulated products currently in use?

GUIDE Such initiatives reduce potential liability related to discharges and spills. Look for feasibility studies, pilot projects or actual implementation.

HAZ 404-5 Is all storage and facility piping labelled by product type?

GUIDE Yes/No.

HAZ 400 Hazardous Materials/Waste Management

405 *TDGA*

HAZ 405-1 Are off-site measures such as vehicle inpsections, route planning and evaluation of transporter compliance to regulations used to minimize risks associated with transportation of dangerous goods or hazardous goods?

GUIDE Determine by interview and review of dangerous goods management files if measures are taken to identify and select better alternatives.

HAZ 405-2 Are labels, placards and manifests (company and special) available on-site for the storage, handling and movement of wastes?

GUIDE Check supplies of all materials. Verify that a system is in place to re-order stock and determine which labels/placards are required.

HAZ 405-3 Are all personnel handling dangerous goods/hazardous wastes trained and certified?

GUIDE Determine which personnel are required to handle dangerous/hazardous materials. Verify that personnel have up-to-date TDG certificate and in-house training.

HAZ 405-4 Are shipments of dangerous goods/hazardous wastes appropriately contained and labelled?

GUIDE Check or observe shipment procedures.

HAZ 405-5 Is protective equipment, first aid supplies and other response material readily available to support routine or emergency environmental situations?

GUIDE Review MSDS sheets or other information source to determine if appropriate equipment is available.

HAZ **400 Hazardous Materials/Waste Management**

406 *Special Materials*
406A *PCB's*

HAZ 406A-1 Is there any PCB filled equipment in service?

GUIDE Indicate if personnel are aware of any PCB inservice equipment.

HAZ 406A-2 Is PCB equipment properly identified and labelled both on the equipment and on the building in which it is housed?

GUIDE Check labels and signage.

HAZ 406A-3 Is any PCB waste stored on-site?

GUIDE Check if containers and locations of all wastes and PCB's are labelled and signed per regulation.

HAZ 406A-4 Are records available?

GUIDE Review PCB records.

HAZ 406A-5 Is a register of employees allowed into the storage building available?

GUIDE Review registry.

HAZ 406A-6 Are PCB's properly stored in containers adequately labelled and contained in storage areas adequately bermed and signed in accordance with regulations?

GUIDE Compare storage conditions to federal regulations.

HAZ 406A-7 Are employees aware of PCB training requirements?

GUIDE Have employees been trained? Are records available documenting training.

HAZ **400 Hazardous Materials/Waste Management**

406 ***Special Materials***
406B ***Asbestos***

HAZ 406B-1 Is asbestos in use?

GUIDE Yes/No

HAZ 406B-2 Have all employees received training in the asbestos identification and control program?

GUIDE Yes/No. Check records.

HAZ 406B-3 Are all employees aware of the hazards, precautions and procedures involved with the exposure to and work involved with asbestos?

GUIDE Verify through interview.

HAZ 406B-4 Is asbestos waste disposed of according to appropriate legislation?

GUIDE Review legislation during pre-audit. Check waste manifests.

HAZ 406B-5 Where asbestos is in service - is it properly identified?

GUIDE Verify through inspection.

HAZ 406B-6 Are the results of all testing of materials for asbestos content available and current?

GUIDE Review records.

HAZ **400 Hazardous Materials/Waste Management**

406 *Special Materials*
406C *Radio Active Materials*

HAZ 406C-1 Have all employees received training in the radioactive materials identification and control program?

GUIDE Check training records.

HAZ 406C-2 Are all employees aware of the hazards, precautions and procedures involved with the exposure to and work involved with radioactive materials?

GUIDE Check training records.

HAZ 406C-3 Is radioactive materials waste disposed of according to appropriate legislation?

GUIDE Review legislation during pre-audit. Check manifest records.

HAZ 406C-4 Where radioactive material is in service - is it properly identified?

GUIDE Verify through inspection.

HAZ 406C-5 Are the results of all testing of materials for radioactive material content available and current?

GUIDE Review records.

HAZ **400 Hazardous Materials/Waste Management**

406 ***Special Materials***
406D ***Other***

HAZ 406D-1 Does the company have a policy on ensuring that Halon is not released during testing?

GUIDE Review policy.

MON 500 Environmental Monitoring

MON 500-1 Have the following been systematically monitored?

	Yes	No
• stream bank/slope stability	_____	_____
• potential erosion areas	_____	_____
• revegetation success	_____	_____
• crop performance over right-of-way	_____	_____
• groundwater	_____	_____
• air quality	_____	_____
• noise	_____	_____
• weed proliferation	_____	_____

GUIDE Check which parameters are systematically monitored. Review notes, monitoring records.

MON 500-2 Were results tabulated/recorded in a report?

GUIDE Review results, reports for accuracy, comprehensiveness, etc..

MON 500-3 Were noted deficiencies/problems acted upon?

GUIDE Review follow-up records, notes and actions. Were these successfully implemented?

MON 500-4 Were results distributed to relevant agencies and affected parties?

GUIDE Check distribution list and any review comments.

CON	600	**Construction**
	601	***Planning***

CON	601-1	Is environmental planning addressed in the project planning stage?
GUIDE		Environmental analyst included in the project team and team responsibilities identified.

CON	601-2	Was a review of background environmental documentation conducted?
GUIDE		Look for evidence that company records, soil survey, CLI maps, related applications and forestry maps were referred to.

CON	601-3	Were field biophysical assessments required, conducted and documented?
GUIDE		Were surveys for wildlife, vegetation, timber assessment, archaeological resources, etc. undertaken?

CON	601-4	Was there a public consultation program in place early in the planning process?
GUIDE		Program documented and reported on.

CON	601-5	Was there a preplanning meeting initiated with regulatory agencies?
GUIDE		Minutes of meeting available and committments documented.

CON	601-6	Was contact made with Field Regulatory personnel to confirm and discuss project plans?
GUIDE		Documentation of discussion and committments.

CON	601-7	Was an Environmental Protection Plan developed for the project?
GUIDE		EPP documentation.

CON	601-8	Does the company have an environmental protection procedures manual?
GUIDE		Yes/No.

CON	600	**Construction**
	601	***Planning***

CON	601-9	Were all applicable environmental approvals obtained and if necessary, conditions of approval incorporated into project documentation?
GUIDE		Written approvals on file and EPP.

CON	601-10	Were environmental requirements, plans/procedures incorporated into contract documents?
GUIDE		Review contract document.

CON	601-11	Was inspection criteria defined to highlight/identify special needs/requirements of the project?
GUIDE		Environmental design summary. Special inspectors employed.

CON **600 Construction**

602 *Construction/Inspection*

CON 602-1 Prior to construction, were affected landowners and regulatory agencies notified and liaison maintained during construction.

GUIDE Contracts documented. Review pre-construction reports.

CON 602-2 Are pre-job meetings held to discuss environmental requirements and expectations?

GUIDE Meeting minutes reviewed.

CON 602-3 Is environmental inspection adequately addressed during construction?

GUIDE Inspector qualified. Inspection check list used.

CON 602-4 Is there a procedure in place to resolve environmental problems/field changes?

GUIDE Chain command design changes documented.

CON 602-5 Is regulatory approval and all document and environmental requirements on site and available to all construction personnel?

GUIDE Check for presence of this documentation.

CON 602-6 Are field approvals being obtained as required during construction?

GUIDE Field approvals documented and filed.

CON 602-7 Are field changes in environmental procedures/requirements approved and documented?

GUIDE Review documentation on file.

CON 602-8 Are daily inspection reports completed and filed?

GUIDE Review documentation on file.

CON 600 **Construction**

602 ***Construction/Inpsection***

CON 602-9 Are general environmental procedures followed during construction?

GUIDE On site review, daily inspection reports and random spot check on procedures.

CON **600 Construction**

603 ***Monitoring (Post-Construction)***

CON 603-1 Is a post construction monitoring program in place or required by regulatory agencies?

GUIDE Check certificate/regulatory conditions for post-construction monitoring requirements.

CON 603-2 Were mitigative measures implemented during construction effective?

GUIDE Review monitoring report and recommendations.

CON 603-3 Were environmental/reclamation deficiencies identified, acted on and corrected?

GUIDE Check report and right-of-way/station site conditions.

CON 603-4 Were the following addressed in a Post-Construction Report?

	Yes	No
• revegetation assessed	_____	_____
• revegetation implemented	_____	_____
• impacts/deficiencies addressed	_____	_____
• impact mitigation addressed	_____	_____
• weed monitoring/control	_____	_____
• landowner concerns addressed	_____	_____

GUIDE Review reports for comprehensiveness of assessment.

(Note: This list may need to be expanded by individual corporations to cover all topics normally discussed in the Post-Construction Report)

ABD	**700**	**Abandonment, Decommissioning and Reclamation.**
ABD	700-1	Was the necessary abandonment approval obtained?
GUIDE		Check records. Has a certificate of reclamation been applied for or received?
MON	700-2	Was the facility abandoned in accordance with regulatory and industry standards?
GUIDE		Interview personnel and check files for comments from regulatory agencies.
MON	700-3	Was the site properly cleaned of trash and other debris?
GUIDE		Is the site aesthetically appealing; have sump wastes been properly treated and disposed of and other wastes hauled off the site for disposal?
MON	700-4	Was topsoil and subsoil material properly handled to maintain soil quality?
GUIDE		Regulatory guidleines require topsoil conservation. Inspect where topsoil and subsoil grading was required and determine if problems exist.
MON	700-5	Were berms and cross dikes constructed across graded slopes to prevent soil erosion?
GUIDE		Control of erosion and potential pollution is regulated. Identify erosion control areas with the field supervisor and inspect for concerns.
MON	700-6	Were all disturbed areas adequately prepared for the revegetation program?
GUIDE		Successful revegetation depends on seed bed preparation. The site should be inspected for soil conditions and adequate vegetation establishment.
MON	700-7	Were the seed varieties used for revegetation compatible with existing land uses and acceptable to the regulatory agencies and the landowner?
GUIDE		Revegetation is required to reach a productivity at least comparable to its undisturbed condition. An inspection may be required to determine if this condition exists.

ABD	**700**	**Abandonment, Decommissioning and Reclamation.**
MON	700-8	Was the site properly restored, considering pre and post land use?
GUIDE		Look for restoration of vegetation cover, pits dried and backfilled, other holes filled. For sites where sump treatment or removal of materials will be at a later date check for adequate storage area.
MON	700-9	When a pipeline was "discontinued" was the integrity of the pipe maintained?
GUIDE		Check records: - Cathodic protection - Purged and capped - Stabilized